Rice Lake Digital Handrail Scale

250-10 Series

Software Revision 11439

Operation Manual

RICE LAKE®
WEIGHING SYSTEMS
To be the best by every measure®

151641- Rev B

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*Technical training seminars are available through Rice Lake Weighing Systems. Course descriptions and dates can be viewed at **www.ricelake.com** or obtained by calling 715-234-9171 and asking for the training department*

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Rice Lake continually offers web-based video training on a growing selection of product-related topics at no cost. Visit www.ricelake.com/webinars.

1.0 introduction

The Rice Lake Digital Handrail Scale is designed for weighing bariatrics and ensures sound, accurate weighing information. A non-skid platform paired with side rails assists persons who need extra support and safety. The scale is set up to use motion sensing weighing technology, to determine the actual weight of a moving patient. The weight is displayed on the indicator and can be displayed in pounds or kilograms.

This manual can be viewed and downloaded from the Rice Lake Weighing Systems web site at www.ricelakehealth.com. Technical information on this product and other medical products are also available on the Rice Lake Weighing Systems web site.

Figure 1-1. Rice Lake Digital Handrail Scale (250-10-2)

2.0 Safety

There are certain precautions that should be taken to prevent personal injury to the user and damage to your scale.

2.1 Safety Signals

Safety Signal Definitions:

Warning *Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.*

Caution *Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury.*

Important *Indicates information about procedures that, if not observed, could result in damage to equipment.*

2.2 Safety Precautions

Do not operate or work on this equipment unless you have read and understand instructions in the manual. Failure to follow the instructions or heed the warnings could result in injury or death. Contact any Rice Lake Weighing Systems dealer for replacement manuals. Proper care is your responsibility.

Warning *Before attempting to operate this unit, make sure every individual who operates or works with this unit has read and understands the following safety information. Please follow these instructions carefully.*

- Do not drop the scale or subject it to violent shocks.
- For accurate weighing, the scale must be placed on a flat, stable surface.
- Do not transport the scale while someone is standing on it.
- Weight exceeding the maximum capacity (1000 lb/453 kg) may damage your scale.
- Operating at voltages and frequencies other than specified could damage the equipment.
- If the *LO Bat* indicator activates, for accurate weighing, replace the batteries or connect the scale to an AC power source as soon as possible.
- To avoid cross contamination, the scale should be cleaned regularly.
- Avoid contact with excessive moisture.
- Do not allow minors (children) or inexperienced persons to operate this scale.
- Do not jump up and down on the scale.
- Do not use in the presence of flammable materials.
- Do not make alterations or modifications to the scale.
- People with disabilities, or who are physically frail, should always be assisted by another person when using this scale.
- Do not use the scale on slippery surfaces, such as a wet floor.
- Do not use this scale when your body/feet are wet, such as after taking a bath.

3.0 Scale Assembly

3.1 Unpacking Your Scale

Place the unopened box in an open area that has ample room for unpacking the scale.

Parts contained in the shipping box include:

- The scale
- This manual
- 6 mm Allen key

3.2 Repacking

If the Digital Handrail Scale must be returned for modification, calibration or repair, it must be properly packed with sufficient packing materials. Whenever possible, use the original carton when shipping the scale back.

Important *Damage caused by improper packaging is not covered by the warranty.*

3.3 Setting Up Your Scale

Move the scale into the area where the weighing process will occur. Place the scale on a hard, level surface for the most accurate weighments.

1. Locate the operator's manual from inside the box and set aside as it will provide instructions on the proper set up.
2. Using two people, remove the scale out of the packaging material that it came in by lifting the scale out of the box by the scale base.

Caution ***DO NOT** lift the scale out of the box by its handle as this can cause the hinges to break.*

3. Gently set the scale platform down to the floor.
4. Loosen the handles using the Allen key and unfold handles and set upright.

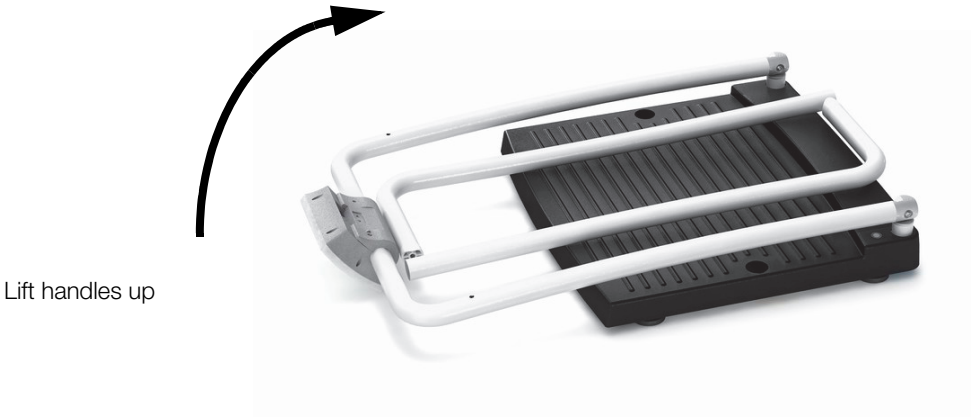


Figure 3-1. Set Up Sides to a Vertical Position

5. Adjust the feet to ensure that the base of the scale base is not touching the floor.
6. Screw in all four legs.
7. Attach the wrap around rails.
8. Tighten the hex screw head using the enclosed 6 mm Allen key to stabilize the scale.

Inserting Batteries

The six AA batteries that come with the scale offer an average of 25 hours of continuous use.

To install the batteries,

1. Open the battery chamber cover by loosening the thumbscrew.
2. Insert batteries into the battery chamber as shown in Figure 3-2.

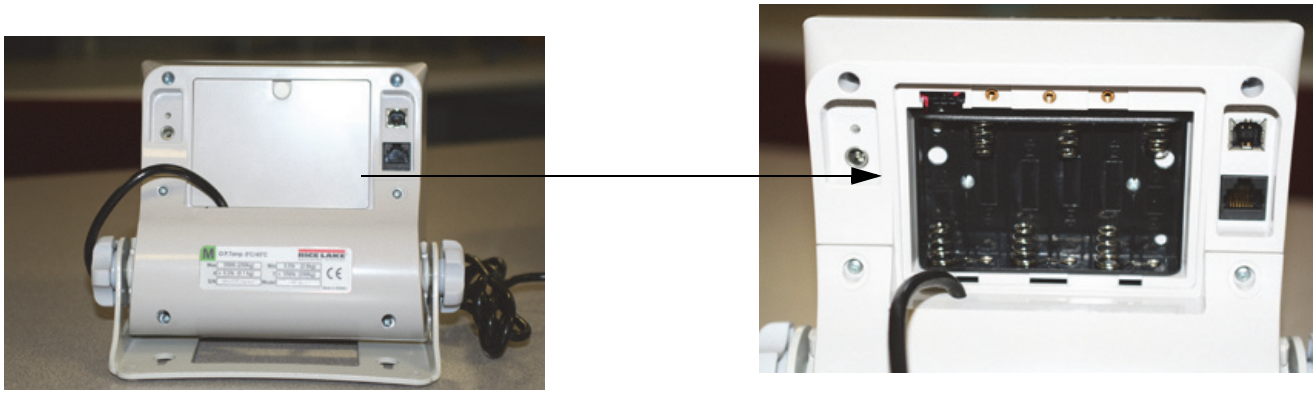


Figure 3-2. Battery Chamber

3. Close the battery chamber.

If an external power supply or USB power supply is connected, the battery flag on the display is turned off.

When using battery or USB power supply, the backlight power is deducted to 60%.

AC Power Connections

Use the optional 120 VAC or 230 VAC adapter when power is available. The optional AC power adapter plugs into the back of the indicator as shown in Figure 3-3.

Figure 3-3. Power Connection

4.0 Scale Operation

The Rice Lake Digital Handrail Scale display has various front panel keys as shown in Figure 4-1.

Figure 4-1. Front Panel Display Keys

Key Descriptions

Table 4-1 describes each of the key functions.

Key	Name	Function
On/Off	On/Off	Switches the scale on or off.
Print LB/KG	Print LB/KG	Print — A long key press will send data out from the RS-232 port. LB/KG — A short key press allows the user to toggle between kilograms and pounds providing that it's enabled in configuration mode. There is no toggling while in the BMI mode.
Zero	Zero	Clears the weight off the scale and returns it to zero after three seconds. It works only if the current weight is stable and zero up to 2% of full weight.
Hold Release	Hold Release	Hold & Release — The first press holds the most current weight value shown on the display. A second press releases the weight value shown. This key is not active while in BMI mode.
BMI	BMI	Enables the user to access the BMI (Body Mass Index) function. This key only works if there is a locked weight shown on the display and the BMI function is turned on in the configuration mode.
TARE	TARE	Used to subtract the weight off the scale, example: oxygen tank, other equipment.
CLEAR	CLEAR	Allows the user to return to normal weighing when the BMI value is being displayed. While in BMI mode, the height display causes the value to return to the default of 190.0 cm, 5 ft, 7.5 in.

Table 4-1. Rice Lake Digital Handrail Scale Key Functions

Key	Name	Function
	ENTER	Used to accept height in BMI mode. Accepts the value of the parameter last entered and moves to the next stage. A long press of the **ENTER** key during the scale's start up process will enter the ID display (pre-parameter mode).
	Up/Down Arrows	Used to adjust height input (0.5 in/0.5 cm) while in BMI mode. Adjusts the value of the flashing digit/number.

Table 4-1. Rice Lake Digital Handrail Scale Key Functions

Caution ***The keys on the front panel display are very sensitive so only a gentle pushing motion is required to obtain results.***

The scales have the capability of performing different operations beyond just calculating weight. The various operating instructions are described below.

4.1 Weighing

Use the following steps to weigh a person.

1. Press the **On/Off** key to turn on the scale and *0.0* will appear on the display along with *ZERO* on the upper display.
2. When the person step on the scale the display shows the person's weight. The *LOCK* annunciator is on in the upper display and beeps to indicate the end of the weighing process.
3. To change the display from kg to lb and vice-versa, press the **LB/KG** key.
4. To turn off the scale, press and hold the **On/Off** key until *OFF* appears on the display.

4.2 Hold/Release Function

Use the following steps to use the Hold/Release function.

1. When the person is on the scale, press the **Hold/Release** key.
2. When the person steps off the scale, the weight and the *HOLD & LOCK* annunciator will remain on the display.
3. At this stage the **Zero** key will not work. The only way to return to zero from here is to press the **Hold/Release** key one more time.

Note ***Pressing the Hold key prior to a person getting on the scale will also work.***

4.3 Preset Tare

Use the following steps to use the Preset Tare.

1. When the weight is set to *0.0*, place the extra load on the scale. Press the **TARE** key until the display returns to *0.0* and *NET* appears on the display.
2. Remove the extra load from the scale. The weight will appear with a negative symbol to the left of it.
3. Ask the patient to step on the scale with the extra weight. The display shows the patient's weight. The *NET* annunciator is still on. The weight of the extra load remains stored in memory.
4. To cancel the tare weight, press and hold the **TARE** key until *NET* disappears from the display and the display turns back to *0.0* and *GROSS* appears. Tare weight is also canceled when the scale is turned off.

4.4 Toggle Tare

Use the following steps to use the Toggle Tare function.

1. When the weight is set to *0.0*, press the **TARE** key.
2. The default tare value is displayed (default is programmed to be 33.0 lb/15.0 kg), while the zero is flashing.
3. Use the **Up/Down** arrow keys to adjust the value.
4. Press **ENTER** to start the tare function and the *NET* annunciator will be turned on instead of the *GROSS* annunciator.

4.5 Using the Body Mass Index (BMI) Function

Use the following steps in determining the BMI.

LB Mode

1. Ensure that the scale is at zero.
2. Have the person step on the scale to obtain a weight.
3. The *LOCK* annunciator is illustrated on the display.
4. Press the **BMI** key. The BMI and FT/IN annunciators are lit on the display and a default value of 5 feet and 7.5 inches (5-07.5) is flashing.
5. Use the **Up/Down** arrow keys to adjust the height value, and press the **ENTER** key to move to the next step.
6. The BMI value and BMI annunciator is shown on the display. Press **CLEAR** to return to the weighing mode and the BMI function will be turned off.

KG Mode

1. Ensure that the scale is at zero.
2. Have the person step on the scale to obtain a weight.
3. The *LOCK* annunciator is illustrated on the display.
4. Press the **BMI** key. The BMI and CM annunciators are lit on the display and a default value of 170.0 cm (170.0) is flashing.
5. Use the **Up/Down** arrow keys to adjust the height value, and press the **ENTER** key to move to the next step.
6. The BMI value and BMI annunciator is shown on the display. Press the **CLEAR** key to return to the weighing mode or step off the scale and the BMI function will be turned off.

5.0 RS-232 Communication

The scale comes with an RS-232 port which enables weight data to be transmitted to other equipment, such as a computer or printer. The RS-232 cable with DB-9 connector (PN 100719) is available from Rice Lake Weighing System. Figure 5-1 shows where the RS-232 connection is.

The RS-232 parameters are 9600 baud (selectable in the programming mode), 8 data bits, 1 stop bit, no parity and no handshaking.

There are three methods of communication:

- Pushbutton keypad print
- Standard remote protocol
- Escape protocol

5.1 Pushbutton Keypad Print

With a stable, in-range weight, press and hold the **Kg-Lb/Print** key for at least three seconds, or until the scale emits two quick beeps. Note that if the scale does not beep after five seconds, then release the button as the weight was either in motion, or out of range.

- If displaying weight and not BMI, the scale will send out the following 21 character string:

xxxxxxxxx<SP>uu<SP>mmmmm<SP><CR><L F>

Where:

xxxxxxxxx is the weight with decimal point and " - " sign, if negative uu is the unit (lb or kg).

mmmmm is the mode (gross or net)

Examples:

-10 Lb net = <SP><SP><SP><SP>-10.0<SP>lb<SP><SP>Net<SP><SP><SP><CR><LF>

10 Lb gross = <SP><SP><SP><SP><SP>-10.0<SP>lb<SP>Gross<SP><CR><LF>

- In BMI mode (displaying the BMI value), the scale will send out the following data:

GROSS WEIGHT	215.0 LB
TARE WEIGHT	0.0 LB
NET WEIGHT	215.0 LB
PATIENT HEIGHT	6-01.0 FT
PATIENT BMI	28.4

5.2 USB Connection

The Rice Lake Digital Handrail Scale has the capability of connecting to a PC using a USB connection and a USB cable (not included). That connection location is shown in Figure 5-1.

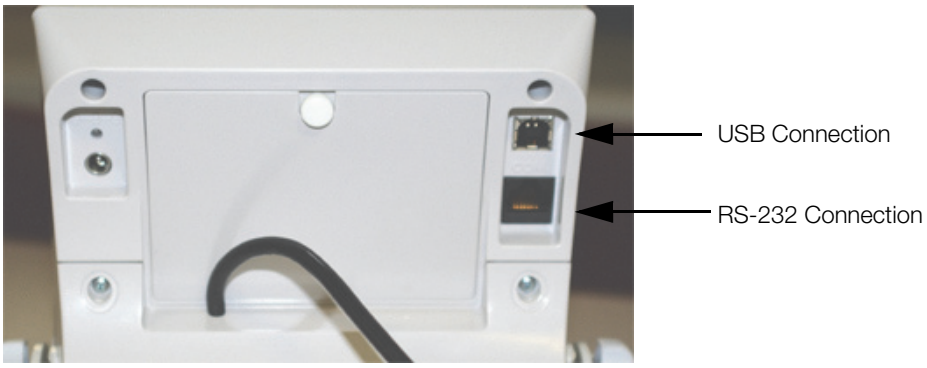
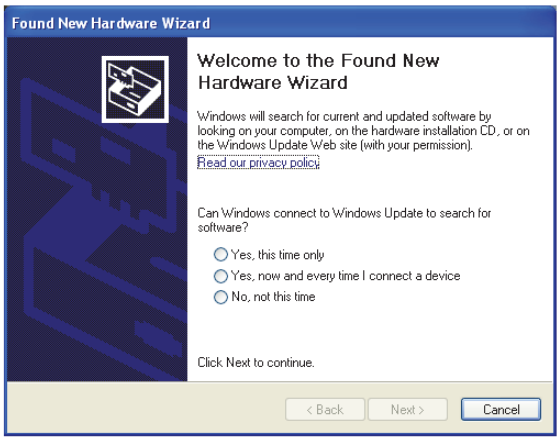


Figure 5-1. USB Connection Port and RS-232 Connection Port

Connecting software and downloads should be addressed by your IT department and can vary depending on what type of computer platform you're using. Basic information on USB driver installation using Windows® is described in the following steps and serves only as an example. The USB driver can be downloaded from the Rice Lake Weighing Systems website at the following location; http://www.ricelake.com/software.aspx

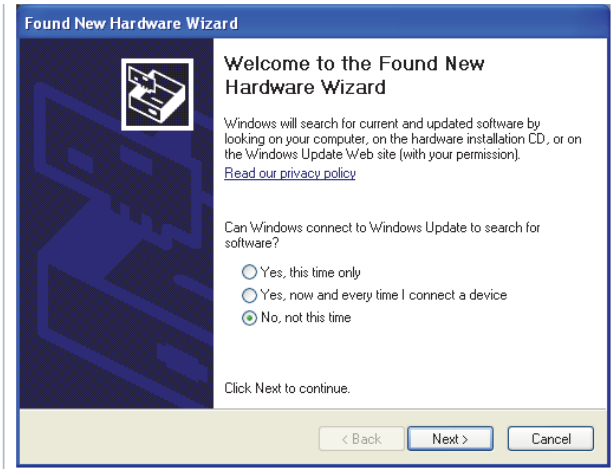
Select Medical/Health Scales, Software and Get Downloads. Opening any product will show a USB Driver download. Click on *Download* to open and download the driver to your computer.

1. The graphic below shows the window that pops up when the USB cable is connected to the indicator and the scale is turned on.

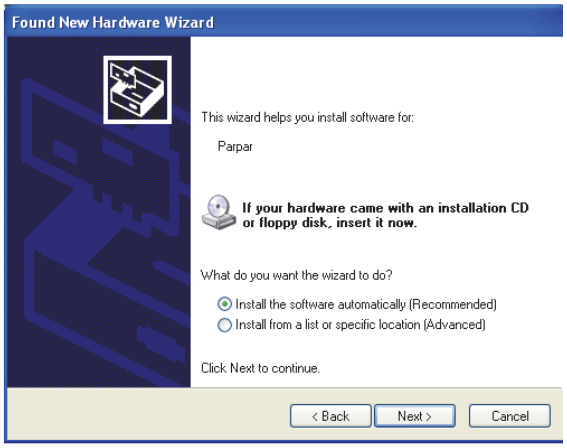

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission).
Read our privacy policy
Can Windows connect to Windows Update to search for software?
Yes, this time only
Yes, now and every time I connect a device
No, not this time
Click Next to continue.
< Back
Next >
Cancel

Follow the screen prompts to navigate through the screens below.

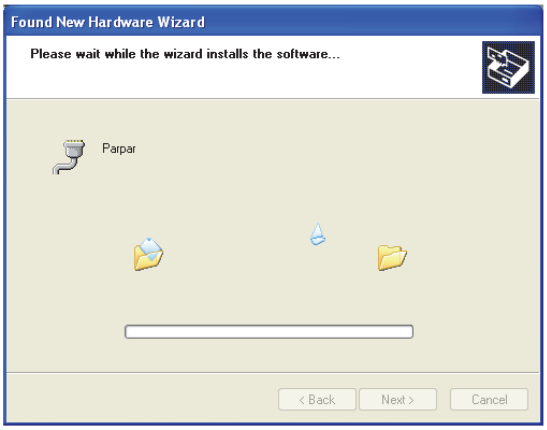
2. Select *No, not this time* and then select **Next**.


Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission).
Read our privacy policy
Can Windows connect to Windows Update to search for software?
Yes, this time only
Yes, now and every time I connect a device
No, not this time
Click Next to continue.
< Back
Next >
Cancel

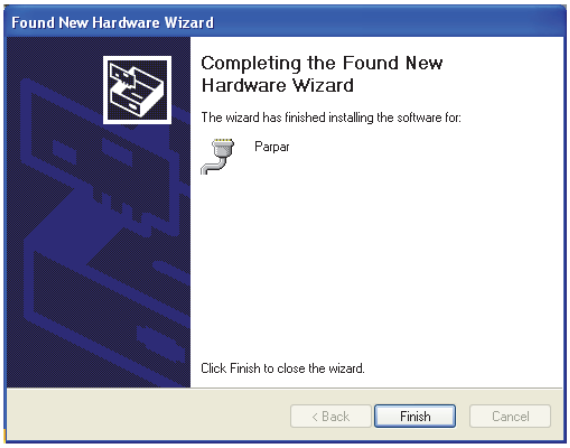
3. Select *Install the software automatically*, then select **Next**.


Found New Hardware Wizard
This wizard helps you install software for:
Parpar
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

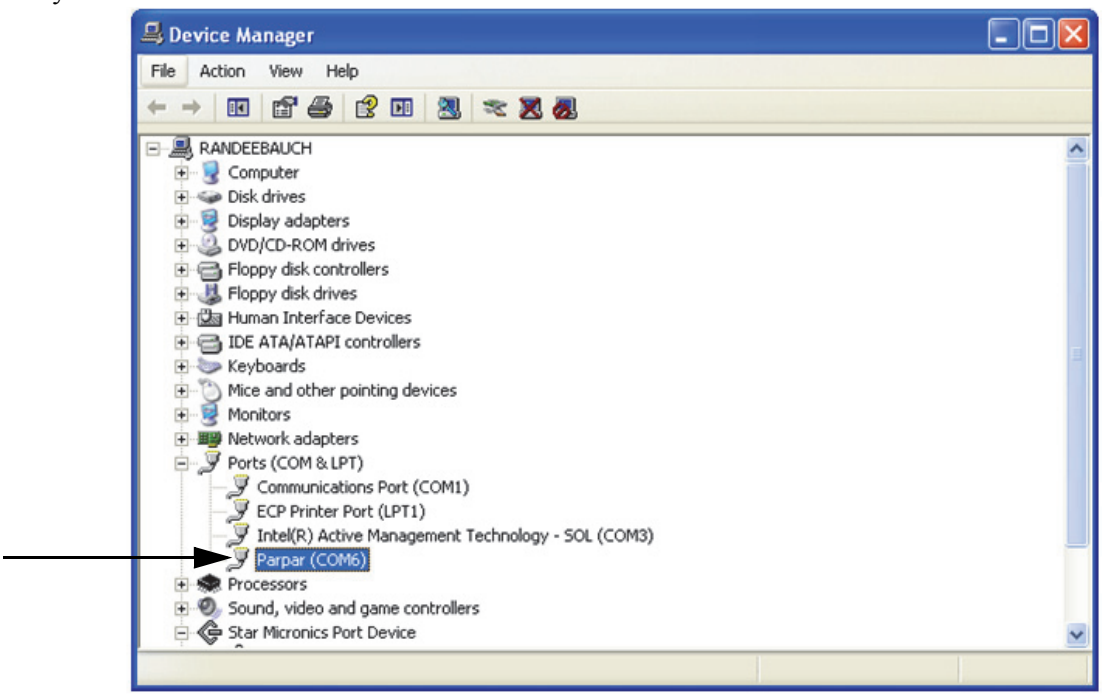
4. The following screen appears while the driver is installing on to your system.



5. The following screen appears when installation is complete. Click on **Finish**.



6. If you want to verify the installation, you can view the driver by looking at the device manager of your system.



7. To print a ticket using the USB driver, open the software driver (shown above) and the port assigned to that driver is shown.
8. Ensure that the USB cable is properly connected and unit is on.
9. Another terminal type program (such as Hyperterminal) needs to be opened and connected through the USB driver to the indicator to be able to see the information being sent to the PC. A port needs to be established so select the port that is assigned to Parpar and print the ticket. The following example tickets will print.

```
                                    WEIGHT

PATIENT WEIGHT   84.4 lb
```

```
                                      BMI

GROSS WEIGHT    84.4  lb
TARE WEIGHT      0.0  lb
NET WEIGHT      84.4  lb
PATIENT HEIGHT 4ft 07.0in
PATIENT B.M.I   19.6
```

Note *A single print ticket has four spaces after the "patient weight" and only one space between weight and lb in the examples shown above. Then seven <CR><LF> after.*

6.0 Troubleshooting and Testing

Refer to the following to check and correct any failure before contacting service personnel.

Symptom	Possible Cause	Corrective Action
Scale does not turn on	Dead battery	Connect the scale to a power source.
	Faulty electrical outlet	Use a different electrical outlet.
	Bad power supply	Replace adapter.
Questionable weight or the scale does not zero	External object is interfering with the scale.	Remove the interfering object from the scale.
	Display did not show 0.0 before weighing.	Help the patient off the scale, zero the scale and begin the weighing process again.
	Scale is not placed on a level floor.	Ensure the scale is level and begin the weighing process again.
	Scale is out of calibration.	Check the weight with a known weight value.
The display shows E messages as detailed below.		
E06	Identifier — ADC	AD too high
E07		AD too low
E10	Overload	Scale has been overloaded. Remove load from scale.
E4L	BAT	Battery low but still useable — One bar left on the indicator display.
E4U		Battery low and unstable — no bars left on the indicator display.
E11	CAL	Calibration Error — recalibrate the scale again.
Err 2	Low saturation state (low A/D)	The load cell is not connected properly. Check the cables and mechanical connections. If the problem persists, replace the set of load cells.
Err 3	High saturation state (high A/D)	See Err 2
Err 6	Unstable weight. Cannot calibrate.	Check the load cells' mechanical surroundings and see that nothing touches them and that the cables are properly welded.
SAT	Damaged load cell cable	Replace load cell cable.

Table 6-1. Troubleshooting Table for the Rice Lake Scale Line

7.0 Maintenance

The following section provides instructions for maintaining and cleaning the Rice Lake line of scales. Maintenance operations other than those described in this section should be performed by qualified service personnel.

7.1 Basic Maintenance

Before the first use of the scale and after periods of non-use, check the scale for proper operation and function. If the scale does not operate correctly, contact qualified service personnel.

Go through the following steps for basic maintenance.

1. Check the overall appearance of the entire scale for any obvious signs of damage.
2. Inspect the condition of the AC adapter for cord cracking or fraying or for broken or bent prongs.

7.2 Cleaning

Proper care and cleaning is essential to ensure a long life of accurate and effective operation. Before beginning the cleaning process, disconnect the scale from the AC power source.

1. Clean all external surfaces with a clean, damp cloth or tissue. Mild soap and water solution may be used. Dry with a clean soft cloth.
2. Do not immerse the scale into cleaning or other liquid solutions.
3. Do not use isopropyl alcohol or other solutions to clean the display surface.

8.0 Rice Lake Digital Handrail Scale Specifications

Power
120 VAC-9VDC-50Hz / 230 VAC-9VDC-50Hz

Battery Type
6 AA size Alkaline batteries

Battery Use
25 hours continuous use
Automatic power-off can be configured

Data Communications
RS-232 with RJ-45 jack
USB connection
Selectable baud rate, default - 9600
8 bits
No parity
1 stop bit
No handshaking

Environmental
Operating Temperature
50 to +104°F (14 to 40°C)
Storage Temperature
32 to 158°F (0 to 70°C)
Humidity
85% relative humidity

Capacity and Graduation
1000 lb (453 kg) 0.2 lb (0.1kg)

Certifications and Approvals
RoHS Compliant

CE

Dimensions
Platform Dimensions
25 in W x 20 in L x 3 in H

For More Information

Literature

- *Medical Scales - Handrail Scale 4 Color*, PN106426
- *Handrail Scale Technical Manual*, PN152436

Web Site

- http://www.ricelakehealth.com

Contact Information

Hours of Operation

Knowledgeable customer service representatives are available 6:30 a.m. - 6:30 p.m. Monday through Friday and 8 a.m. to 12 noon on Saturday. (CST)

Telephone

- Sales/Technical Support 800-472-6703
- Canadian and Mexican Customers 800-321-6703
- International 715-234-9171

Fax

- Fax Number 715-234-6967

Email

- U.S. sales and product information at prodinfo@ricelake.com
- International (non-U.S.) sales and product information at intlsales@ricelake.com

Mailing Address

Rice Lake Weighing Systems

230 West Coleman Street

Rice Lake, WI 54868 USA

Rice Lake Digital Handrail Scale Limited Warranty

Rice Lake Weighing Systems (RLWS) warrants that all RLWS equipment and systems properly installed by a Distributor or Original Equipment Manufacturer (OEM) will operate per written specifications as confirmed by the Distributor/OEM and accepted by RLWS. All systems and components are warranted against defects in materials and workmanship for two years.

RLWS warrants that the equipment sold hereunder will conform to the current written specifications authorized by RLWS. RLWS warrants the equipment against faulty workmanship and defective materials. If any equipment fails to conform to these warranties, RLWS will, at its option, repair or replace such goods returned within the warranty period subject to the following conditions:

- Upon discovery by Buyer of such nonconformity, RLWS will be given prompt written notice with a detailed explanation of the alleged deficiencies.
- Individual electronic components returned to RLWS for warranty purposes must be packaged to prevent electrostatic discharge (ESD) damage in shipment. Packaging requirements are listed in a publication, *Protecting Your Components From Static Damage in Shipment*, available from RLWS Equipment Return Department.
- Examination of such equipment by RLWS confirms that the nonconformity actually exists, and was not caused by accident, misuse, neglect, alteration, improper installation, improper repair or improper testing; RLWS shall be the sole judge of all alleged non-conformities.
- Such equipment has not been modified, altered, or changed by any person other than RLWS or its duly authorized repair agents.
- RLWS will have a reasonable time to repair or replace the defective equipment. Buyer is responsible for shipping charges both ways.
- In no event will RLWS be responsible for travel time or on-location repairs, including assembly or disassembly of equipment, nor will RLWS be liable for the cost of any repairs made by others.

THESE WARRANTIES EXCLUDE ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. NEITHER RLWS NOR DISTRIBUTOR WILL, IN ANY EVENT, BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

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SHOULD THE SELLER BE OTHER THAN RLWS, THE BUYER AGREES TO LOOK ONLY TO THE SELLER FOR WARRANTY CLAIMS.

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